



**Metro Nashville**  
DISTRICT ENERGY SYSTEM

## ***Advisory Board Quarterly Meeting***

Presented to  
District Energy Advisory Board

May 17, 2007



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# Agenda

1. Call to Order
2. Introduction of new DES Contract Administrator
3. Review and Approval of February 22, 2007 Meeting Minutes
4. Review and Comparison of DES Unit Costs
5. Review of Operations Monitoring Reports
6. Natural Gas Purchasing Up-Date
7. Financial Report - Third Quarter FY 07
8. Status of Budget FY2008
9. Capital Projects Review
10. Customer Contract Capacity Reviews
11. Service Interruption Procedures
12. Gas Purchasing Rate Stabilization Fund
13. Other Board Member Items
14. Adjourn



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# 1. Call to Order



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## **2. Introduction of New DES Contract Administrator**

- Harry Ragsdale, President
- Dan Coyle, Vice-President
- Jon Belcher, P.E.
- Kevin Jacobs, P.E





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## **3. Review and Approval of Meeting Minutes of February 22, 2007**



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## **4. Review and Comparison of DES Unit Costs**

Summary Table 4A – 2007 vs 2006  
Unit Costs for Complete Calendar  
Year



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## Summary Table 4A - 2007 vs. 2006 YTD Unit Costs

| Previous<br>12 Months              | Steam (\$ per m lb) |         |         | Chilled Water<br>(\$ per ton-hr) |         |         |
|------------------------------------|---------------------|---------|---------|----------------------------------|---------|---------|
|                                    | 2006                | 2007    | % Diff. | 2006                             | 2007    | % Diff. |
| Private                            | \$25.49             | \$26.45 | 2.0%    | \$0. 179                         | \$0.165 | -7.6%   |
| State                              | \$23.98             | \$25.83 | 7.7%    | \$0.161                          | \$0.162 | 0.73%   |
| Metro                              | \$34.59             | \$28.99 | -16.2%  | \$0.232                          | \$0.145 | -37.4%  |
| All Initial<br>System<br>Customers | \$26.40             | \$27.31 | 3.4%    | \$0.181                          | \$0.167 | -7.9%   |



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## **5. Review of Operations Monitoring Reports for 3rd Quarter FY 2007**





## **Quarterly Monitoring Report Outline**

### **1. Operations**

- Summary
- Steam: Sales, Sendout and Losses
- Chilled Water: Sales, Sendout and Losses

### **2. Performance Measurement**

- Steam: Fuel, Condensate Return, Electricity, Water
- Chilled Water: Electricity, Water

### **3. Facility Walk-through – Performed quarterly**



# Summary

## 3<sup>rd</sup> Quarter FY 2007 vs 3<sup>rd</sup> Quarter FY 2006

- **Weather**
  - Heating Degree Days – cooler than last year with 49 more HDD (2.8%)
  - Cooling Degree Days – warmer than last year with 39 more CDD
- **Sales**
  - Steam – less than last year by 1,808 Mlbs (1.4%)
  - Chilled Water – more than last year by 2,713,000 ton hrs (26%)
- **Energy Use**
  - Electricity for Steam Production -- more than last year by 20,556 kwh (6.3%)
  - Electricity for CHW Production – more than last year by 991,230 kwh (12%)
  - Natural Gas for Steam Production – more than last year by 25,675 MMBTU (12%)
- **Water Use**
  - Water for Steam Production – more than last year by 3,728,00 gallons (18%)
  - Water for CHW Production – more than last year by 3,361,000 gallons (17%)

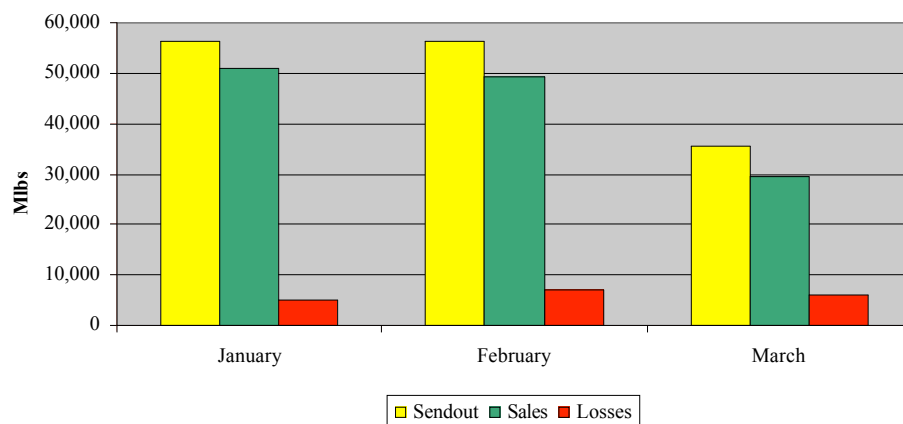


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## Operations

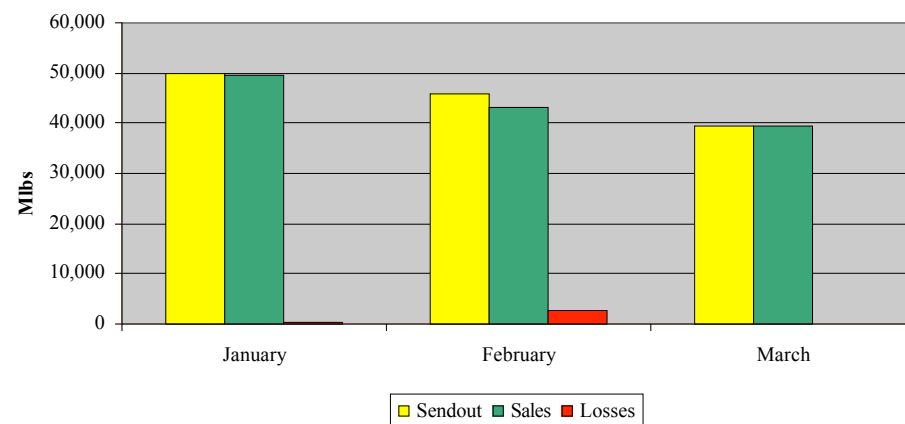
### Steam Sales, Sendout and Losses

Steam Sendout, Sales and Losses - 3rd Quarter FY07



**FY 2007**

Steam Sendout, Sales and Losses - 3rd Quarter FY06



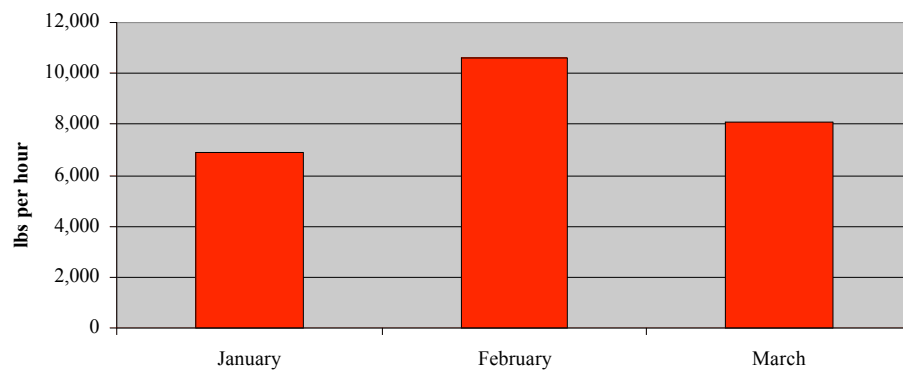
**FY 2006**



## Operations

### Steam Loss Rate

Average Steam Loss Rate - 3rd Quarter FY07



**Percent  
of Sendout**

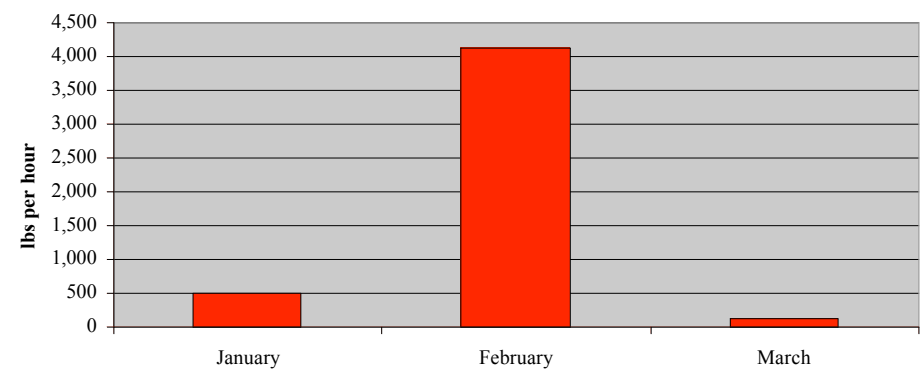
**9.15%**

**12.65%**

**16.93%**

**FY 2007**

Average Steam Loss Rate - 3rd Quarter FY06



**0.74%**

**6.06%**

**0.25%**

**FY 2006**

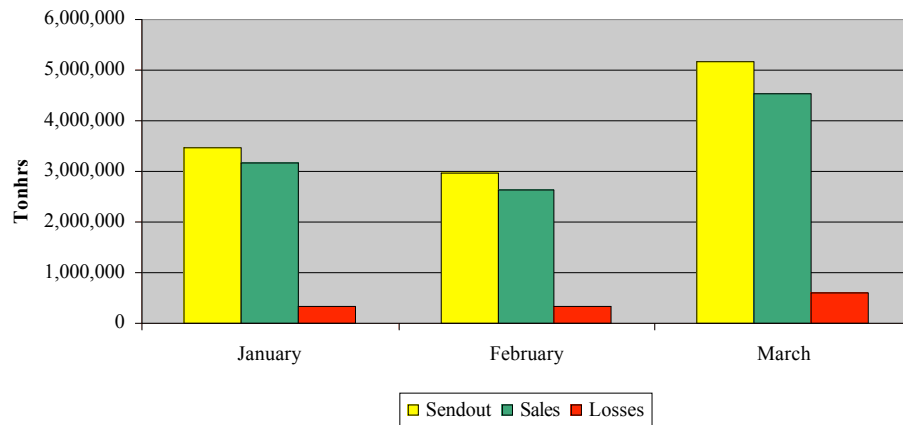


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## Operations

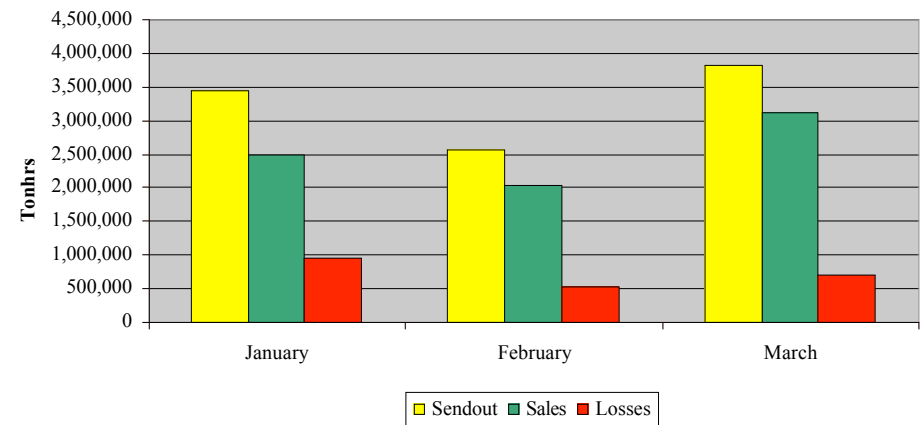
### Chilled Water Sendout, Sales, and Losses

CHW Sendout, Sales and Losses - 3rd Quarter FY07



**FY 2007**

CHW Sendout, Sales and Losses - 3rd Quarter FY06



**FY 2006**

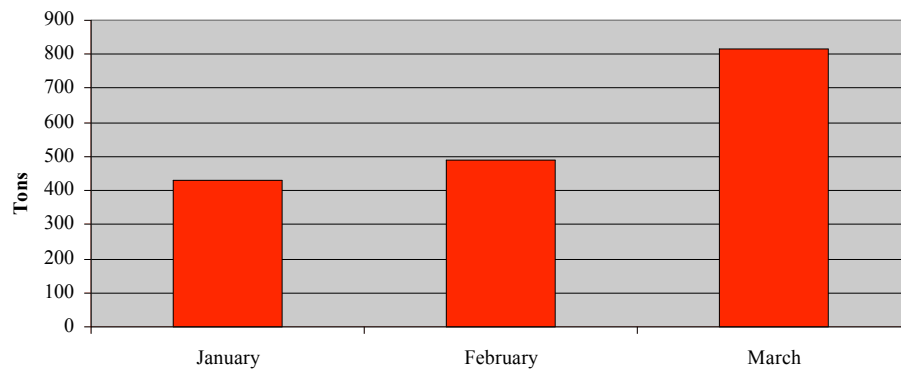


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## Operations

### CHW Loss Rate

Average CHW Loss Rate - 3rd Quarter FY07



Percent  
Of Sendout

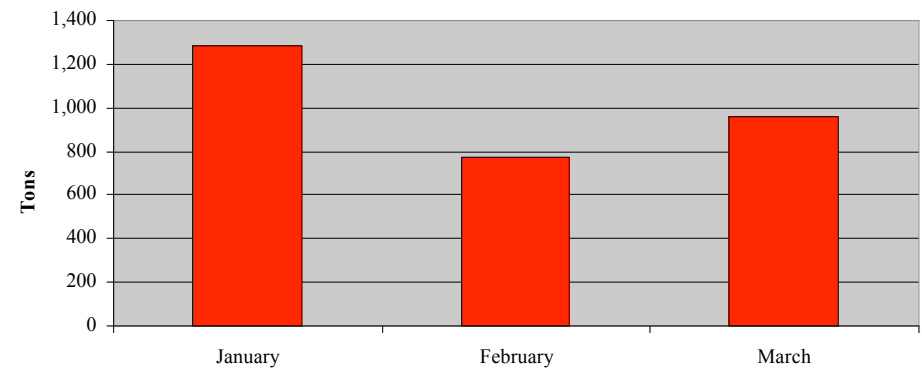
**9.16%**

**11.03%**

**11.79%**

**FY 2007**

Average CHW Loss Rate - 3rd Quarter FY06



**27.85%**

**20.34%**

**18.58%**

**FY 2006**

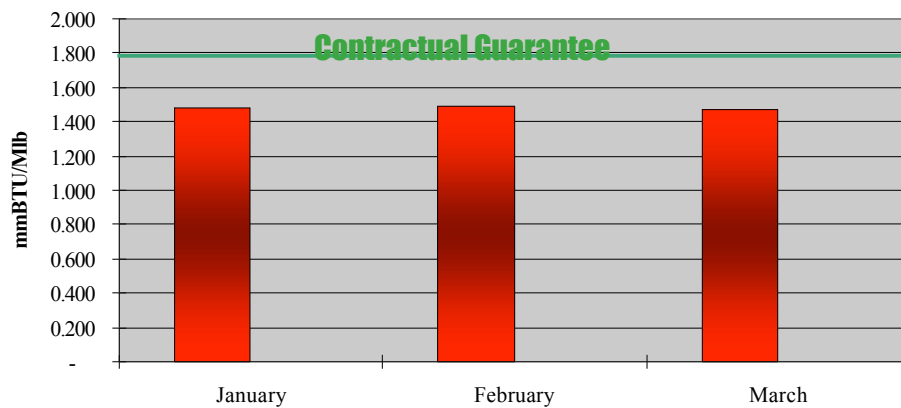


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## Performance Measurement

### Fuel used for Steam Sendout

Fuel Used for Steam Sendout - 3rd Quarter FY07



**FY 2007**

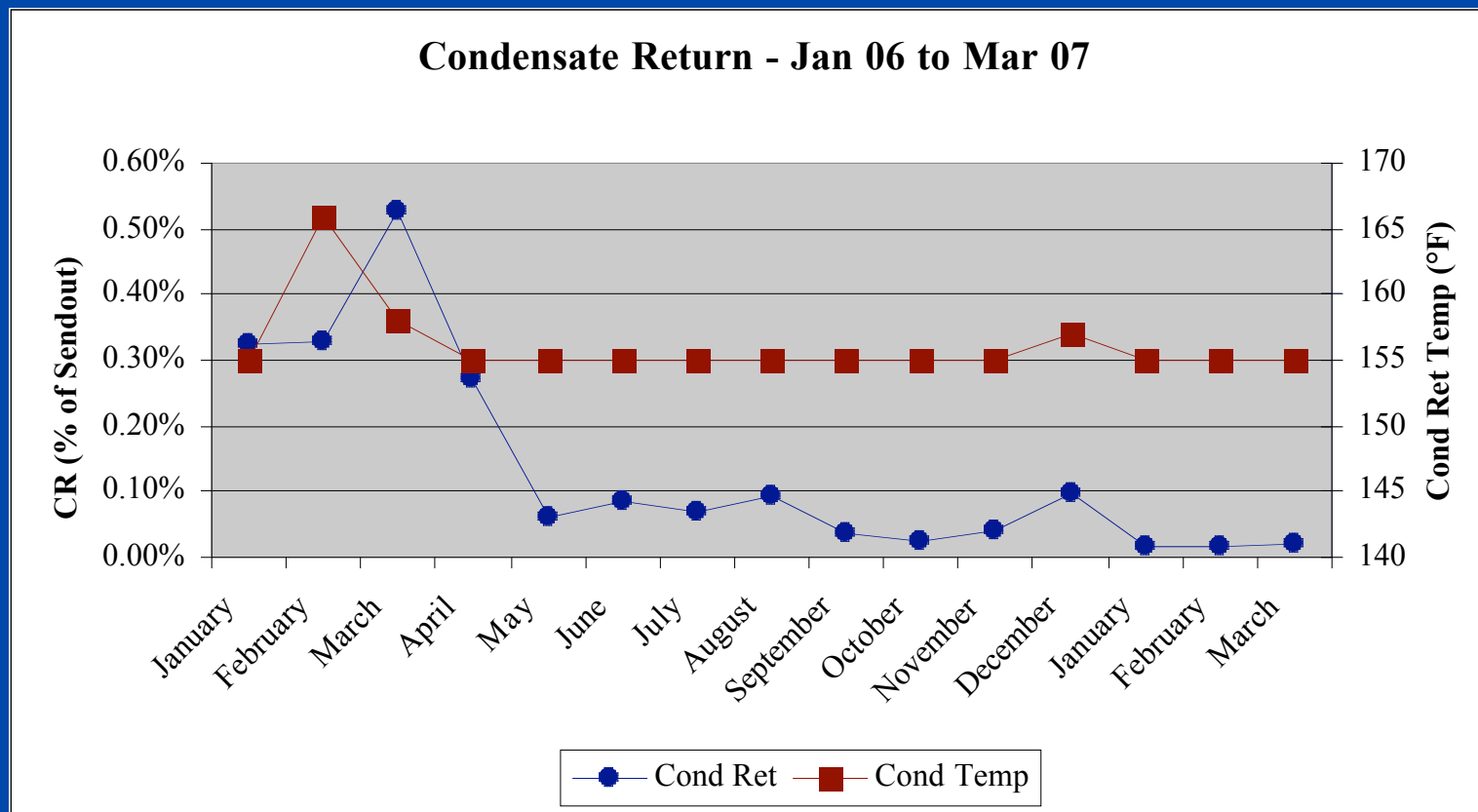
Fuel Used for Steam Sendout - 3rd Quarter FY06



**FY 2006**



## Performance Measurement Condensate Return







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## Performance Measurement

### Electricity used for Steam Sold

Electricity Used for Steam Sold - 3rd Quarter FY07



**FY 2007**

Electricity Used for Steam Sold - 3rd Quarter FY06



**FY 2006**

**Note: Contractual Guarantee is 6.0 kWhr/Mlb sold. Current performance is 2.72 kWhr/Mlb sold.**



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## Performance Measurement

### Steam Makeup Water Use

Steam Water Use Make-up Ratio - 3rd Quarter FY07



**FY 2007**

Steam Water Use Make-up Ratio - 3rd Quarter FY06



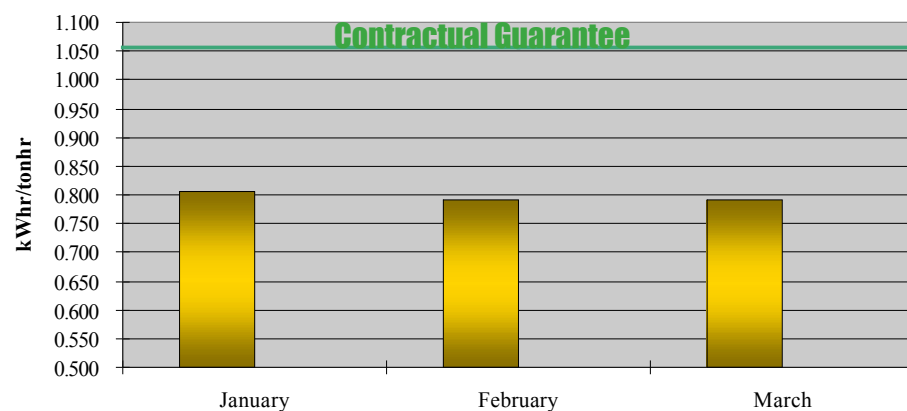
**FY 2006**



## Performance Measurement

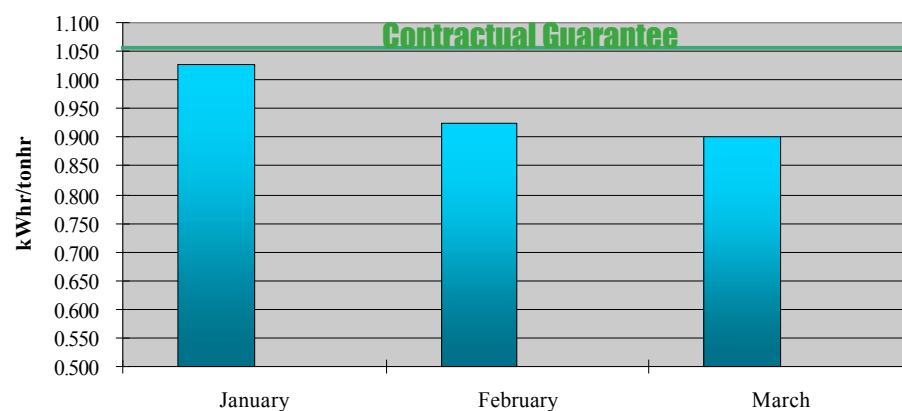
### Electricity Used for CHW Sold

Electricity Used for Chilled Water Sold - 3rd Quarter FY07



**FY 2007**

Electricity Used for Chilled Water Sold - 3rd Quarter FY06



**FY 2006**

**Note: Contractual Guarantee is 1.055 kwh/tonhr sold. Current performance is 0.79 kWhr/tonhr sold.**

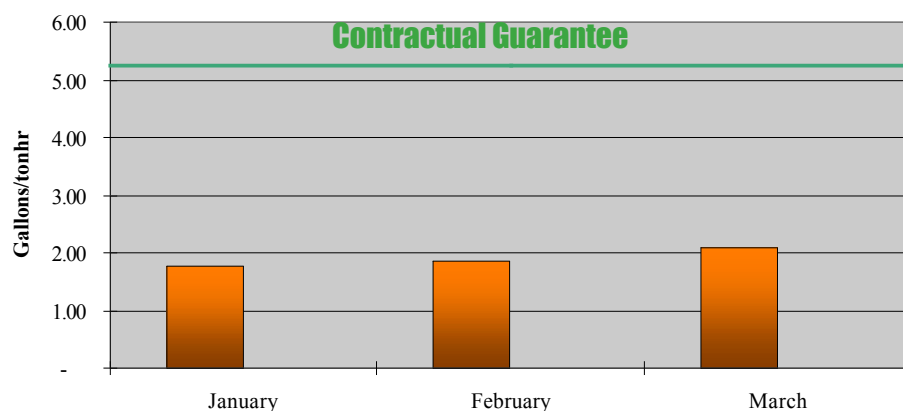


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## Performance Measurement

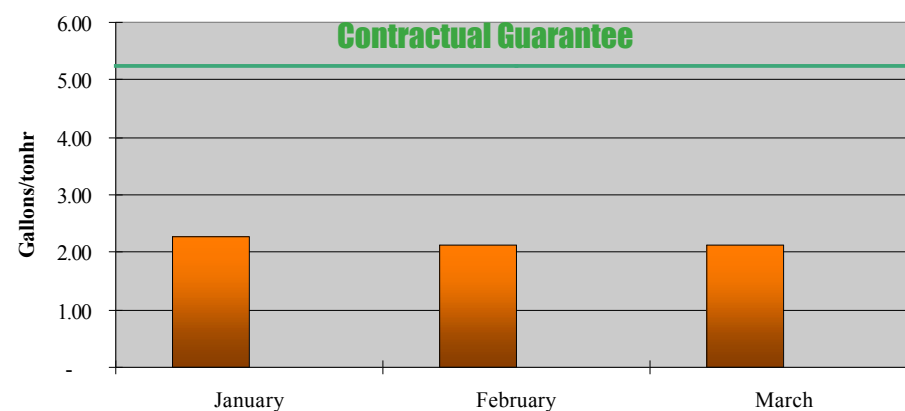
### CHW Makeup Water Use

CHW Make-up Water Use - 3rd Quarter FY07



**FY 2007**

CHW Make-up Water Use - 3rd Quarter FY06



**FY 2006**

**Note: Contractual Guarantee is 5.25 gallons/tonhr sold. Current performance is 2.08 gallons/tonhr sold.**



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## Facility Walk-through



### Quarterly Inspection Process

- Log Book
- Housekeeping
- Maintenance work in process
- Building Structure
- Safety Equipment
- Instrumentation and controls
- Building exterior and grounds
- Document with digital photos



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# The EGF is Clean and Well-Maintained





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## 6. Natural Gas Purchasing Up-date

### Natural Gas Purchasing Review

- Table 6A - FY07 Gas Spending v. Budget
- Table 6B - Projected Gas Costs for FY08





**Table 6A - Natural Gas Fiscal Year to Date (July 2006 through March 2007)**

| FY07 Budget |           |             |              |                |                   |                 |
|-------------|-----------|-------------|--------------|----------------|-------------------|-----------------|
| Steam Sold  | Steam Out | Deca-therms | Price per Dt | Dt per mlb out | Price per mlb out | Gas Cost All-in |
| 298,487     | 346,269   | 579,402     | \$12.495     | 1.500          | \$18.74           | \$6,498,777     |
| FY07 Actual |           |             |              |                |                   |                 |
| 279,465     | 330,583   | 492,649     | \$9.817      | 1.490          | \$14.90           | \$4,836,282     |





## Table 6B - Projected Gas Costs for FY08

|         |                             |                     |                   |                      |                         |                                    |                                | NDES Targeted Hedge Volumes  |                                  |                                 |
|---------|-----------------------------|---------------------|-------------------|----------------------|-------------------------|------------------------------------|--------------------------------|------------------------------|----------------------------------|---------------------------------|
|         | Estimated Consumption (Dth) | Hedged Quantity Dth | Hedge WACOG Price | Current Market Price | Average Commodity Price | Marked to Market Value (Loss)/Gain | Actual Hedged Percentage Level | NDES Target Hedge Percentage | % of NDES Target Volume Unhedged | # Contracts to Meet NDES Target |
| Jul-07  | 26,000                      | 12,900              | \$8.308           | \$7.870              | \$8.087                 | -\$5,646.33                        | 50%                            | 80%                          | 30%                              | 0.7900                          |
| Aug-07  | 27,000                      | 13,500              | \$8.286           | \$7.984              | \$8.135                 | -\$4,070.25                        | 50%                            | 80%                          | 30%                              | 0.8100                          |
| Sep-07  | 34,000                      | 17,100              | \$8.347           | \$8.038              | \$8.193                 | -\$5,283.90                        | 50%                            | 80%                          | 30%                              | 1.0100                          |
| Oct-07  | 48,000                      | 24,200              | \$8.322           | \$8.148              | \$8.236                 | -\$4,210.80                        | 50%                            | 80%                          | 30%                              | 1.4200                          |
| Nov-07  | 62,000                      | 18,600              | \$8.577           | \$8.828              | \$8.753                 | \$4,672.32                         | 30%                            | 80%                          | 50%                              | 3.1000                          |
| Dec-07  | 81,000                      | 16,100              | \$8.366           | \$9.503              | \$9.277                 | \$18,302.48                        | 20%                            | 80%                          | 60%                              | 4.8700                          |
| Jan-08  | 86,000                      | 16,800              | \$8.326           | \$9.838              | \$9.543                 | \$25,399.92                        | 20%                            | 80%                          | 60%                              | 5.2000                          |
| Feb-08  | 72,000                      | 14,500              | \$8.361           | \$9.828              | \$9.533                 | \$21,265.70                        | 20%                            | 80%                          | 60%                              | 4.3100                          |
| Mar-08  | 62,000                      | 12,200              | \$8.372           | \$9.588              | \$9.349                 | \$14,841.30                        | 20%                            | 80%                          | 60%                              | 3.7400                          |
| Apr-08  | 50,000                      | 4,600               | \$7.940           | \$8.278              | \$8.247                 | \$1,554.80                         | 9%                             | 80%                          | 71%                              | 3.5300                          |
| May-08  | 36,000                      | 3,300               | \$7.940           | \$8.150              | \$8.131                 | \$693.00                           | 9%                             | 80%                          | 71%                              | 2.5500                          |
| Jun-08  | 28,000                      | 2,400               | \$7.940           | \$8.220              | \$8.196                 | \$672.00                           | 9%                             | 80%                          | 71%                              | 1.9900                          |
| Summary | 612,000                     | 156,200             | \$8.338           | \$8.689              | \$8.855                 | \$68,190.24                        | 26%                            | 80%                          | 54%                              | 33.3300                         |

The result of the conference call (05/03/07) was to increase the hedged amounts highlighted by 10%



# 7. Financial Reports – Third Quarter FY07

| Item                          |                          | FY07 Budget  | 3rd Quarter Cum. % of Budget | FY07 Budget for 3 Quarters | FY07 Spending through March '06 | % over (under) |
|-------------------------------|--------------------------|--------------|------------------------------|----------------------------|---------------------------------|----------------|
| FOC                           | Basic                    | \$3,659,463  | 75.0%                        | \$2,744,597                | \$2,744,597                     | 0.0%           |
|                               | 9th Chiller              | \$34,289     | 75.0%                        | \$25,717                   | \$25,718                        | 0.0%           |
|                               | C/O 6A                   | \$67,698     | 75.0%                        | \$50,774                   | \$50,774                        | 0.0%           |
|                               | C/O 6B                   | \$59,267     | 75.0%                        | \$44,450                   | \$41,498                        | -6.6%          |
|                               | Chemicals                | \$132,870    | 74.8%                        | \$99,393                   | \$116,933                       | 17.6%          |
|                               | Engineering              | \$53,788     | 75.0%                        | \$40,341                   | \$0                             | -100.0%        |
|                               | Insurance                | \$32,632     | 100.0%                       | \$32,632                   | \$39,883                        | 22.2%          |
| Marketing                     | - CES Sales Activity     | \$30,000     | 75.0%                        | \$22,500                   | \$14,559                        | -35.3%         |
|                               | - Metro Marketing        | \$59,700     | 75.0%                        | \$44,775                   | \$37,716                        | -15.8%         |
|                               | - Incentive Payments     | \$28,528     | 75.0%                        | \$21,396                   | \$21,311                        | -0.4%          |
|                               | - Metro Project Admin    | \$61,300     | 75.0%                        | \$45,975                   | \$0                             | -100.0%        |
|                               | Metro Incremental Cost   | \$592,100    | 75.0%                        | \$444,075                  | \$395,985                       | -10.8%         |
|                               | Water                    | \$693,918    | 74.8%                        | \$519,082                  | \$398,468                       | -23.2%         |
|                               | Natural Gas              | \$8,015,491  | 84.7%                        | \$6,792,880                | \$5,033,570                     | -25.9%         |
|                               | Electricity              | \$4,318,594  | 72.0%                        | \$3,111,093                | \$2,846,158                     | -8.5%          |
|                               | EDS Repair & Improvement | \$161,363    | 75.0%                        | \$121,022                  | \$6,429                         | -94.7%         |
|                               | EDS Surcharge            | \$64,438     | 75.0%                        | \$48,329                   | incl.                           |                |
| FEA                           | Steam                    |              |                              |                            | \$145,027                       |                |
|                               | CHW                      |              |                              |                            | \$51,800                        |                |
| Subtotal - Operations         |                          | \$18,065,440 | 78.7%                        | \$14,209,031               | \$11,970,426                    | -15.8%         |
| Debt Service                  | 2002 Bonds               | \$4,299,502  | 75.0%                        | \$3,224,626                | \$3,226,070                     | 0.0%           |
|                               | 2005 Bonds               | \$637,838    | 29.6%                        | \$188,919                  | \$188,919                       | 0.0%           |
| Oper. Reserve Funding Deposit |                          | \$433,274    | 75.0%                        | \$324,956                  | \$348,720                       | 7.3%           |
| Total                         |                          | \$23,436,054 | 76.6%                        | \$17,947,532               | \$15,734,134                    | -12.3%         |
| Metro Funding Amount          |                          | \$2,282,182  | 75.0%                        | \$1,711,637                | \$1,254,164                     | -26.7%         |



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## **8. Status of Budget FY08**

**The Operating Budget was submitted to Metro Council and is currently under review.**



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## **9. Capital Projects Review :**

- Table 9A – Capital Projects Summary
- Table 9B – Update of Capital Projects



**Table 9A - Capital Project Status Summary – 3/31/07**

|                        | Spent to End<br>of 2 <sup>nd</sup> Qtr | 3 <sup>rd</sup> Qtr<br>Spending | Balance at End<br>of 3 <sup>rd</sup> Qtr |
|------------------------|--|---------------------------------|--|
| 2002A Bond<br>Projects | \$3,458,182                            | \$160,394                       | \$163,126                                |
| R&I Projects           | \$113,471                              | \$3,408                         | \$236,584                                |
| 2005B Bond<br>Projects | \$7,354,531                            | \$21,498                        | \$810,983                                |
| 2007 Bond<br>Projects  | \$0                                    | \$31,822                        | \$2,826,687                              |
| Total                  | \$10,926,184                           | \$217,122                       | \$4,037,470                              |



**Table 9B – Capital Projects  
as of 3/31/07**

|                              | <b>Budget</b>      | <b>Spent through<br/>3/31/07</b> | <b>Remaining to Be<br/>Spent</b> |
|------------------------------|--------------------|----------------------------------|----------------------------------|
| <b>2002A Projects</b>        |                    |                                  |                                  |
| Tennessee Towers Decoupling  | \$1,350,422        | \$1,187,296                      | \$163,126                        |
| <u>Total Closed Projects</u> | <u>\$2,377,281</u> | <u>\$2,377,281</u>               | <u>\$0</u>                       |
| <b>Total 2002A Projects</b>  | <b>\$3,727,703</b> | <b>\$3,564,577</b>               | <b>\$163,126</b>                 |
| <b>Repair/Improvement</b>    | <b>\$353,463</b>   | <b>\$116,879</b>                 | <b>\$236,584</b>                 |
| <b>2005B Projects</b>        |                    |                                  |                                  |
| Renaissance Re-piping        | \$538,818          | \$555,229                        | (\$16,412)                       |
| Customer Metering            | \$1,676,439        | \$1,649,794                      | \$26,645                         |
| General and Admin            | \$1,186,710        | \$385,963                        | \$800,746                        |
| <u>Total Closed Projects</u> | <u>\$4,785,044</u> | <u>\$4,785,042</u>               | <u>\$2</u>                       |
| <b>Total 2005B Projects</b>  | <b>\$8,187,011</b> | <b>\$7,376,028</b>               | <b>\$810,981</b>                 |



**Table 9B – Capital Projects as of  
3/31/07 (Continued)**

|                                   | <b>Budget</b>      | <b>Spent through<br/>3/31/07</b> | <b>Remaining to Be<br/>Spent</b> |
|-----------------------------------|--------------------|----------------------------------|----------------------------------|
| <b>2007 Projects</b>              |                    |                                  |                                  |
| MH 18 to L Steam/Cond Replacement | \$818,206          | \$0                              | \$818,206                        |
| TN Tower Cond Line Replacement    | \$317,031          | \$0                              | \$317,031                        |
| MH 5 to 6 Cond Replacement        | \$489,688          | \$0                              | \$489,688                        |
| JK Polk Cond Line                 | \$413,123          | \$0                              | \$413,123                        |
| Tunnel Lighting Ph II             | \$152,551          | \$0                              | \$152,551                        |
| General and Admin                 | \$484,152          | \$11,313                         | \$472,839                        |
| <u>Total Closed Projects</u>      | <u>\$183,758</u>   | <u>\$20,509</u>                  | <u>\$163,249</u>                 |
| <b>Total 2007 Projects</b>        | <b>\$2,858,509</b> | <b>\$31,822</b>                  | <b>\$2,826,687</b>               |



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## **10. Customer Contract Capacity Reviews**

- **Contract Demand vs Actual Demand - see Handout**
- **Notice Provided to Customers - see Handout**





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# 11. Service Interruption Procedures



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# **12. Gas Purchasing Rate Stabilization Fund**



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## **13. Other Board Member Items**

## **14. Adjourn**